

- 20 -

C L A I M S

1. Process for the preparation of hydrogen and carbon monoxide containing gas from a carbonaceous feedstock by performing the following steps:

5 (a) partial oxidation of a carbonaceous feedstock in an vertically oriented tubular partial oxidation reactor vessel comprising a burner at its upper end thereby obtaining a first gaseous mixture of hydrogen and carbon monoxide,

10 (b) catalytic steam reforming a carbonaceous feedstock in a Convective Steam Reformer comprising a tubular reactor provided with one or more tubes containing a reforming catalyst, wherein the steam to carbon molar ratio of the feed to step (b) is below 1, to obtain as separate product a steam reforming product,

15 (c) feeding the steam reformer product to the upper end of the partial oxidation reactor to obtain a mixture of the effluent of step (a) and the steam reformer product, and

20 (d) providing the required heat for the steam reforming reaction in step (b) by convective heat exchange between the mixture obtained in step (c) and the steam reformer reactor tubes thereby obtaining a hydrogen and carbon monoxide containing gas having a reduced temperature.

25 2. Process according to claim 1, wherein the steam to carbon molar ratio of the feed to step (b) is between 0.5 and 0.9.

3. Process according to any one of claims 1-2, wherein the temperature of the mixture obtained in step (c) is between 800 to 1050 °C.

- 21 -

4. Process according to any one of claims 1-3, wherein the mixture obtained in step (c) is subjected to an autothermal reformer step.